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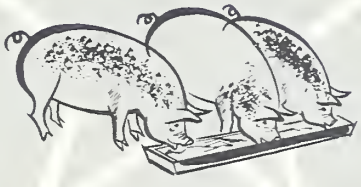
MEAT PRODUCTION IN THE SOVIET UNION



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NOTE: The comparative and trend United States and USSR statistics in this study are based on official published sources as specified in accompanying tables. Differences in Soviet and U.S. red meat terminology are adjusted for comparative purposes as indicated in table footnotes, but for production trend indications, total meat production statistics may be quoted directly from the sources referenced. The Soviet definition or meat (miaso) has undergone several revisions in the past two decades. Prior to the late thirties, Soviet meat statistics usually included only three major categories (beef and veal, pork, mutton and goat). In recent years Soviet meat statistics have expanded to five major categories, adding "poultry" and "other meats" to the former categories. The "other meats" category apparently includes wild game, rabbit, horse, etc., but is subject to variation in definition in different sources. For purposes of distinction in this study, "total meat" includes the five major categories and "red meat" includes the original three categories.

The major emphasis of the study is on meat production, but livestock will be included as relevant.

MEAT PRODUCTION IN THE SOVIET UNION

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Production and Trends

Current Situation

The Soviet Union has steadily increased its meat and livestock production, especially in the last decade, until today it is surpassed in meat production only by the United States. Its current meat output is about half that of the United States. This growth was preceded, however, by over 30 years of sharp fluctuations in total production. These fluctuations were occasioned by a number of ideological and technical problems in Soviet socialized agriculture. Many of these basic problems are still apparent in Soviet agriculture, but it is evident that the Khrushchev program, launched in 1953, has had some success in modifying those relating to livestock and meat problems in degree if not in form and has achieved significant increases in meat production. The degree of success in reaching the ambitious 7-year plan (1959-65) goals for meat output will depend, in the final analysis, on the steps taken by the Soviet Government to meet recurring problems inherent in its socialized livestock and meat industry.

A typical ideological problem which has plagued the planners since the inception of Soviet socialized agriculture is the role of the private sector in livestock and meat production. 1/ Add to this the technical problems of inadequate feed supply, unsound breeding and feeding methods, and insufficient mechanization in the livestock industry and antiquated transport, refrigeration, and slaughtering facilities in the meat packing industry, and it becomes apparent that the planned jump from 16.9 billion pounds in 1958 to 35.3 billion pounds in 1965 is a formidable task. Nevertheless by 1958 total meat output was 58 percent above the 1950 figure. For 1959 the Soviets report an 11-percent increase over 1958 to 19.0 billion pounds, the second largest yearly increase to date. Allowing for statistical gaps and variations in meat terminology, the reported production is sufficient to indicate that a significant upward trend has been achieved. Further, it would appear that current plans and capabilities are adequate to sustain this upward trend for several years to come but not in quantities to meet the goals of the 7-year plan.

1/ In the early thirties the peasants slaughtered their privately owned cattle wholesale in protest against forced collectivization. Subsequent government programs have been more cautious and subtle in the campaign to reduce the holdings of private owners. Lately, the tempo has been increased somewhat and in December 1958, the Central Committee passed a resolution that state farms should buy privately owned cattle from their workers and employees. This was followed by warnings in the press against undue haste. Nevertheless, during 1959, a number of Union Republics issued decrees that private ownership of cattle by urban dwellers must end by October 1, 1959.

TABLE 1.--Meat: Total and red meat production in the Soviet Union, selected years 1913-59, goals 1960 and 1965 1/

(Carcass weight 2/)

Year	Total meat		Beef and Veal	Pork	Mutton and goat	Poultry	Other meats	Red Meat		
	Amount	Percent increase 1953-60						Amount	Percentage of total meat	Percent increase 1953-58
	Million Pounds	Percent	Million Pounds	Million Pounds	Million Pounds	Million Pounds	Million Pounds	Million Pounds	Percent	Percent
1913 3/	10,922	-	4,211	4,032	1,958	721	(4/)	10,201	93.4	-
1929. .	12,769	-	(4/)	3,247	(4/)	(4/)	(4/)	(4/)	(4/)	-
1940. .	10,350	-	4,206	3,807	1,623	637	77	9,636	76.7	-
1945. .	5,641	-	2,927	1,254	1,219	190	51	5,400	95.7	-
1950. .	10,730	-	5,192	3,258	1,521	613	146	9,971	92.7	-
1953. .	12,836	-	4,608	5,082	1,574	1,574	441	11,264	87.7	-
1954. .	13,847	8	4,610	5,985	1,563	1,058	631	12,158	87.8	8
1955. .	13,937	1	4,808	5,575	1,821	1,003	730	12,204	87.6	1
1956. .	14,545	4	5,176	5,877	1,828	1,047	617	12,881	88.6	6
1957. .	16,256	12	5,306	7,372	1,713	1,287	578	14,391	88.5	12
1958. .	16,920	4	5,922	7,106	2,030	1,354	508	15,058	89.0	5
1959. .	18,960	11	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)
1960. .	23,369	22	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)
1965 5/	35,274	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)	(4/)

1/ Official Soviet statistics.
2/ Meat and fat, including offal.
3/ Reported as "includes current boundaries" of USSR.
4/ Not available.
5/ Some Soviet sources claim 1965 goal will be reached in 1963.

Zhitotnovodstvo SSSR, Statisticheskii Sbornik, Moscow, 1959, pp. 14, 157, 159. Narodnoye Khoziaistvo SSSR v 1958 godu, Moscow, 1959, p. 469. SSSR v tsifrakh v 1959 godu, Moscow, 1960, p. 127. Total meat categories for 1958 were computed using percent of each kind of meat as indicated in source.

The meat production goals of the plan have undergone several revisions. At various times, they have been scaled up and down in articles in the official government publications. The latest goals to be discussed were 23.4 billion pounds by 1960 and 35.3 billion pounds by 1963 or 1965. To attain the latter would require an average annual increase of 15.4. percent. Since 1953, the yearly increase has averaged less than half that. It is evident that to achieve a 108-percent increase between 1958 and either 1963 or 1965 would require improvements in the livestock and meat industry which appear improbable.

To stimulate meat production, Chairman Khrushchev, early in his regime, marshalled the planning and propaganda organs of the Communist Party behind a campaign to outstrip the United States in per capita production of meat, milk, and butter by 1965. This soon became a popular slogan, and today thousands of posters are displayed on the farms urging the farmers to surpass the United States in meat, milk, and butter. At the end of 1959, the party announced that Soviet farmers had exceeded U.S. gross milk output and per capita butter production, but for meat they announced only a 32-percent increase over 1958 and that the 1965 goal was to be attained in 1963. Apparently, for the time being, meat production comparable to that of the United States must remain in the category of a stimulus for attaining future goals in Soviet meat production.

Soviet and U.S. Comparisons

From the Soviet point of view, meat production competition with the United States is not only a matter of production but a matter of ideology. For example, in 1957, Khrushchev stated that the Soviets had no plans to blow up the capitalist world because surpassing the United States in per capita production of meat, butter, and milk would accomplish essentially the same purpose. 2/

In 1950, Soviet holdings of red meat livestock surpassed the United States in total numbers; still, the production of red meat in 1950 was less than 40 percent of U.S. production. Up to the present time the Soviet red meat livestock holdings include greater numbers of smaller animals (sheep, lamb, goats), which means less meat produced per head and, consequently, less total red meat production. By 1958, Soviet red meat production was approximately half that of the United States.

Red Meat comprises nearly 90 percent of the current total meat production of the USSR and has only deviated slightly from this in recent years. Those changes which have occurred undoubtedly are related to the government drive to increase meat production--consequently, the emphasis on faster maturing animals, especially hogs and poultry. Poultry at the present time comprises 8 percent of total meat production compared to 5.7 in 1950 and a goal of 11 to 12 percent by 1965. Pork comprises about 42 percent of the total meat production as compared to 30 percent in 1950. The latest available Soviet data

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2/ Pravda, May 24, 1957. p. 1.
3/ See definition of "red meat," note p. ii.

TABLE 2.--Livestock: Number used for producing red meat, United States and Soviet Union as of Jan. 1, selected years 1916-59

Year	Cattle		Pigs		Sheep and lambs 1/		Total red-meat livestock	
	United States	USSR	United States	USSR	United States	USSR	United States	USSR
	Million head	Million head	Million head	Million head	Million head	Million head	Million head	Million head
1916 . . .	67.4	58.4	60.6	23.0	40.0	96.3	168.0	177.7
1929 . . .	58.9	58.2	59.0	19.4	48.4	107.1	166.3	184.7
1940 . . .	68.3	47.8	61.1	22.5	52.1	76.7	181.5	147.0
1945 . . .	85.6	44.2	59.4	8.8	46.5	70.2	191.5	123.2
1950 . . .	80.0	58.1	58.9	22.2	29.8	93.6	168.7	173.9
1952 . . .	88.1	58.8	62.1	27.1	32.0	107.6	182.2	193.5
1953 . . .	94.2	56.6	51.8	28.5	31.9	110.0	177.9	195.1
1954 . . .	95.7	55.8	45.1	33.3	31.4	115.5	172.2	204.6
1955 . . .	96.6	56.7	50.5	30.9	31.6	113.0	178.7	200.6
1956 . . .	96.8	58.8	55.2	34.0	31.3	116.2	183.3	209.0
1957 . . .	94.5	61.4	51.7	40.8	30.8	119.8	177.0	222.0
1958 . . .	94.0	66.8	51.6	44.3	31.3	130.1	176.9	241.2
1959 2/. .	96.7	70.8	56.9	48.7	32.9	139.2	186.5	258.7
1960 2/. .	101.5	74.1	58.5	53.3	33.6	143.9	193.6	271.3

1/ Soviet data also include goats, which in 1959 was about 7 percent of the combined figure.
2/ Preliminary.

Chislennost skota v SSR: Statisticheskii Sbornik, Moscow, 1957, pp. 6 and 15, for Soviet data through 1953; Zhivotnovodstvo SSR: Statisticheskii Sbornik, Moscow 1958, p. 23 for Soviet data 1954-58. Narodnoye Khoziaistvo SSSR v 1958 gody, Moscow 1959, pp. 451, 453, 455, and 456 for 1959 Soviet data. Pravda, Jan. 22, 1960, for 1960 data.

TABLE 3.--Red meat: Production by kinds, United States and Soviet Union, selected years 1940-58

Year	Beef and Veal		Pork		Mutton and lamb 2/		Total red meat		
	United States	USSR 2/	United States	USSR 2/	United States	USSR	United States	USSR 2/	USSR percent of U.S. total red meat
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Percent
1940. . .	8,156	3,617	10,044	3,350	876	1,331	19,076	8,298	43.5
1945. . .	11,940	2,517	10,697	1,104	1,054	1,000	23,691	4,621	19.5
1950. . .	10,764	4,465	10,714	2,867	597	1,247	22,075	8,579	38.9
1953. . .	13,953	3,963	10,006	4,472	729	1,291	24,688	9,726	39.4
1954. . .	14,610	3,965	9,870	5,267	734	1,282	25,214	10,514	41.7
1955. . .	15,147	4,135	10,991	4,906	758	1,493	26,896	10,534	39.2
1956. . .	16,094	4,451	11,218	5,172	741	1,499	28,053	11,122	39.6
1957. . .	15,739	4,563	10,482	6,487	707	1,405	26,928	12,455	46.3
1958. . .	14,550	5,093	10,525	6,253	685	1,665	25,760	13,011	50.5

1/ Soviet data include goat meat.

2/ Carcass equivalent, offal and some fat excluded from Soviet red data by reducing original beef and veal data 14 percent, pork data 12 percent, and mutton, lamb, and goat data 18 percent. (Compare table 4).

Soviet data from Zhivotnovodstvo SSSR: Statisticheskii, Sbornik, Moscow 1959, pp. 157, 159.

indicate that total meat production, in addition to the poultry and pork indicated, includes 35 percent beef and veal, 12 percent mutton and goat, and 3 percent other meats.

The Soviet Government is faced with the problem of achieving spectacular gains in red meat production if it is to compete with the United States on either a per capita or a total red meat production basis. Soviet per capita production was about 41 percent, and total red meat production was just over 50 percent of U.S. production in 1958. Granting attainment of the 1965 goal, per capita red meat production may still only be 65 to 70 percent of U.S. estimated production.

Trends

The 1913 prerevolutionary meat production of 10.9 billion pounds was not exceeded under the Soviet system until the 1929 reported production of 12.8 billion pounds of meat. This was achieved, however, during the New Economic Policy (NEP) period when relatively free markets and private ownership were permitted. Following the NEP, livestock holdings plummeted again in the early 30's when peasants slaughtered their private livestock in vigorous opposition to the government's forced collectivization of agriculture. By 1939, meat production climbed back up to but 11.3 billion pounds. World War II depleted livestock numbers again and the 1929 peak was not equaled until 1953, when 12.8 billion pounds of meat were produced. Since 1953, Soviet meat statistics have reflected steady yearly gains and in 1959, under the stimulus of the government drive to surpass the United States, reached a record of 19.0 billion pounds. This is only half the total U.S. meat production but represents an 11-percent increase over 1958. The USSR is now the world's second largest meat producer.

Production Problems

The USSR livestock industry has the biological potential to achieve sharp increases in hogs, sheep, and poultry. A modern integrated hog production program, similar to Canada's recent one, could result in a hog population explosion. Twin calving developments could radically alter cattle production. But while these research developments could significantly change the meat production trend in the USSR, the Soviet Government is faced with a number of meat production problems which must be solved if it is to attain the ambitious goals of the 7-year plan (1959-65).

Private Ownership

All of the livestock and meat produced in the USSR today are the result of two systems of ownership, private and socialist, commonly called the private and socialized sectors of agriculture. 4/ The private ownership principle is

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4/ The term "private sector" refers to private owners who raise livestock and produce meat. This includes collective farmers, workers in cities and towns, and a few individual farmers and government employees who have privately owned livestock. The term "socialized sector" refers to government-controlled state farms, collective farms, and a few meat enterprises producing livestock and meat.

TABLE 4.--Livestock and poultry: Percent distribution of slaughter products, Soviet Union, 1955

Class and Soviet grade	Percent of live weight				Carcass weight as percent of live weight 1/	Edible offal as percent of Carcass weight
	Meat	Fat	Edible offal: Tongue and kidney	Edible offal: Head and Feet		
Livestock:						
Cattle:	Percent	Percent	Percent	Percent	Percent	Percent
Fat	49.0	5.5	3.3	3.9	61.7	11.7
High medium	47.6	4.5	3.3	3.9	59.3	12.1
Medium	42.2	3.2	3.3	3.9	52.6	13.7
Hogs:						
Fat	70.0	8.0	3.1	5.9	87.0	10.3
Semi-fat	67.0	7.0	3.1	5.9	83.0	10.8
Meat-bacon	61.0	4.3	3.1	5.9	74.3	12.1
Sheep:						
Fat	45.0	4.2	3.1	6.2	58.5	15.9
High medium	43.0	3.4	3.1	6.2	55.7	16.7
Medium	40.5	2.5	3.1	6.2	52.3	17.8
Poultry: 2/						
Chickens	86.0	0	0	0	86.0	0
Geese	83.0	3.0	0	0	86.0	0
Ducks	84.0	2.0	0	0	86.0	0
Turkeys	86.0	0	0	0	86.0	0

1/ Most current Soviet sources of meat statistics cite "carcass weight, meat and fat, including offal." The conventional U.S. system of reporting excludes offal, and excludes lard in reporting pork.

2/ Average quality.

Rusakov, G. K., V. pomoshch' presedatelia kolkhoza, Moscow, 1955, p. 527; republished by P. A. Tukten in Spravochnaia kniga agronoma Sibiri, Moscow, 1957, p. 593.

TABLE 5.--Meat: Per capita production in Soviet Union and United States, selected years 1940-58 projected 1965

Year	Red meat production 1/						Total Soviet red meat production 1/	Total Soviet population
	United States	USSR	Percent USSR of U.S.	United States	USSR	Percent USSR of U.S.		
	Pounds	Pounds	Percent	Pounds	Pounds	Percent	Million Pounds	Millions
1940 . .	142.4	43.3	30	-	-	-	8,298	191.7
1950 . .	144.6	46.9	32	-	-	-	8,579	183.1
1953 . .	155.3	50.5	33	207.2	68.3	33	9,726	192.6
1954 . .	154.7	53.6	35	-	-	-	10,514	196.0
1955 . .	162.8	52.8	32	-	-	-	10,534	199.4
1956 . .	166.7	55.6	33	-	-	-	11,122	200.2
1957 . .	159.0	60.4	38	213.8	79.4	37	12,455	206.3
1958 . .	152.1	62.3	41	207.2	81.6	39	13,011	208.8
1965 2/	175.0	117.6	67	-	-	-	26,456	225.0

1/ Original Soviet data on total red meat production, 1940-58, were adjusted to exclude offal and some edible fats (see table 4). USSR per capita production computed from adjusted total red meat production and Soviet population statistics.

2/ 1965 U.S. data based on estimated production and population. 1965 USSR data based on 1956 goal and estimated population.

Zhivotnovodstvo SSR: Statisticheskii Sbornik, Moscow, 1959, pp. 157, 159. Narodnoye Khoziaistvo SSR v godu, Moscow, 1957, pp. 202-204. Ezhegodnik BSE, Moscow, 1958, p. 5. Vestnik statistiki, Moscow, No. 10, 1958, p. 93. Izvestiya, Jan. 16, 28, 1959, for 1950-57 population statistics. 40 Years of Soviet Power, Moscow, 1958, p. 19 for 1940 population. Central Statistical Board announcement, Moscow, 1960, for 1958 population. Narodnoye Khoziaistvo SSSR v 1958 godu, Moscow, 1959, p. 469.

still very evident in the livestock industry and the old Russian proverb, "As the owner--so his livestock" can still be heard in conversations in the Russian countryside. 5/ In fact, in 1958 approximately half the cattle, a third of the hogs, and a fourth of the sheep were owned by the private sector. 6/ For meat, the private sector in 1958 produced 53 percent of total meat output, but this represented a drop from 72 percent in 1940 and is generally indicative of the gradually diminishing role of the private sector in Soviet socialized agriculture.

TABLE 6.--Meat: Total production by socialized and private sectors, Soviet Union, annual 1940, 1945-58

Year	Socialized sector		Private sector	
	Amount	Percentage of total production	Amount	Percentage of total production
	Million pounds	Percent	Million pounds	Percent
1940	2,947	28	7,403	72
1945	2,215	39	3,426	61
1946	2,293	34	4,502	66
1947	2,143	39	3,386	61
1948	2,152	32	4,599	68
1949	2,564	31	5,706	69
1950	3,523	33	7,207	67
1951	3,999	39	6,299	61
1952	4,943	43	6,455	57
1953	6,116	48	6,720	52
1954	6,054	44	7,793	56
1955	6,495	46	7,442	54
1956	6,516	45	8,029	55
1957	7,579	47	8,677	53
1958	7,937	47	9,039	53

1/ "Socialized ownership" includes the state and cooperative farms and other state-owned institutions and enterprises.
2/ "Private ownership" includes cooperative farmers, workers, and other persons with privately owned livestock.

Zhivotnovodstvo SSSR, Statisticheskii Sbornik, Moscow 1959, p. 161.
Narodnoye Khoziaistvo SSSR v 1958 gody, Moscow 1959, p. 467.

5/ Russkiye narodniye poslovitsy i pogovorki, Moscow, 1958, p. 204.
6/ Zhivotnovodstvo SSSR, Statisticheskii Sbornik, Moscow, 1959, p. 26.

In the Communist scheme for agriculture, private ownership in agriculture has proved to be a bothersome ideological problem. From the 1917 Revolution to date, the Soviet Government has vacillated between repressing and ignoring the private sector in agriculture. During World War II controls were relaxed, but in 1949 the government reinstituted tighter control over livestock and meat production by the private sector. The 1949-51 plan called for improving breeding practices, feed production, livestock buildings, and mechanization of livestock production, but concurrently the collective farmers were urged to sell their privately owned livestock to the collective farms. During this period, the private sector's share of total meat production dropped from 69 to 61 percent. This decline continued until 1953 when in September the government raised procurement prices and eased taxes and loan restrictions in agriculture. The following year the share of the private sector rose to 56 percent of all meat output.

During 1957 and 1958, the private sector meat-production share dropped to 53 percent coincident with government proposals that private owners increase their sale of livestock to the socialized sector. In December 1958, Khrushchev addressed the Central Committee and openly attacked the collective farmers' privately owned plots as things of the past and praised those collective farmers who had sold their cattle to the collective farms. 7/ This was followed up by various pressures by party workers on the private sector at the local levels, but, in spite of this, the percentage of total production remained unchanged in 1957 and 1958. In 1959, these pressures reached such proportions that the government became concerned and, on March 5, Pravda published an editorial, "Against Harmful Haste in the Solution of an Important Task." 8/ According to the article, some local officials had gone so far as to tell the collective farmers they could not own private livestock. The government again moderated its approach and private owners on farms were "encouraged" to sell to the state. 9/ Later in the same year, Khrushchev once more openly criticized private ownership of livestock, in particular, by urban dwellers. Following up on this, a number of major Republics decreed that private ownership of cattle by urban dwellers must cease by October 1, 1959. This latter move, if totally successful, would reduce the private sector share of one-half total meat production by an estimated 5 percent.

The overall effect of government repression of private ownership in livestock and meat production will depend mainly on the counterbalancing incentives offered and the degree of moderation exercised by the government. It is apparent that in recent years the government has been able to achieve steady yearly increases in production and concurrently diminish the relative role of the private sector.

7/ Pravda, February 16, 1958, p. 1.
8/ Pravda, March 5, 1959, p. 1.
9/ Plenum Tsentral'nogo Komiteta Kommunisticheskoi Partii Sovetskogo Soiuza, 15-19 Dekabria 1958g; Stenografisheskii Otchet, Moscow, 1958, p. 232. Khrushchev, in discussing the 1959-65 Plan, denounced the attitude of some collective farmers and Party members toward the large number of privately owned livestock.

Feed

One of the major problems in Soviet livestock and, consequently, in meat output has been the problem of feed production. As the output of livestock and meat increased, the demand for feeds increased. In recent years a great deal of attention has been given to expanding corn production to meet this need, and the slogan, "The battle for increased meat output is primarily a battle for more corn production," is frequently heard. 10/ Along with the current emphasis on corn, there has been an increase in acreage sown to lupine, perennial grasses, peas, beans, and sorghum for feed. In this respect, it is quite evident that there is some difference of opinion among Soviet animal husbandrymen on the corn emphasis and the total feed (sown feed crops, hay, and pasture) concept. 11/

TABLE 7.--Feed crops: Distribution of acreage by type of crop, Soviet Union, 1940, 1953, and 1956

Crop	Unit	1940	1953	1956
Sown feeds: 1/				
Acreage	1,000 acres	44,661	70,979	103,112
Percent of total feed acreage	Percent	7.3	9.9	13.9
Percent of cultivated crop acreage	Percent	12.0	18.3	21.4
Hay:				
Acreage	1,000 acres	131,541	128,774	116,426
Percent of total feed acreage	Percent	21.4	18.0	15.7
Pasture:				
Acreage	1,000 acres	439,450	517,536	524,233
Percent of total feed acreage	Percent	71.3	72.1	70.4
Total feed acreage	1,000 acres	615,652	717,289	743,771

1/ Includes corn for silage and green fodder.

Sel'skoye Khoziaistvo SSSR, Moscow 1958, pp. 320, 322. 323.

In considering total feed production, it is evident that the trend is toward increasing sown feed acreage at the expense of the pasture and hay acreage. Between 1940 and 1956 the pasture and hay acreage dropped from 92 percent of the total USSR feed acreage to 82 percent, but the sown feed acreage

10/ 40 Years of Soviet Power, Moscow, 1958, p. 171.
11/ Sel'skoye Khoziaistvo SSSR, Moscow,1958, pp. 318-356.

increased from 7 to 14 percent of the USSR feed acreage. At the same time that the Virgin Lands program was bringing 90 million additional acres under crop in the USSR, the sown feed acreage, between 1954 and 1956, increased from 71 million acres to 103 million acres. 12/ By 1959 the sown feed acreage reached 129 million acres.

In the total feed concept, 13/ the Soviets are giving considerable attention to green feeds. In what is termed the "green conveyor system," they plan to provide green feed from early spring to late fall, consistent with the best use of the sown pasture and hay acreage. In theory, this system is designed to provide silage in the early spring when green feeds are scarce, green pastures and green feed (oats, winter rye, vetch, sorghum) are to be used in season and in the late fall, root crops, squash, pumpkins, and corn are to be fed.

In recent years, Khrushchev has personally pushed the production and use of silage and corn in the Soviet feeding system. In 1959 approximately 55 million acres was sown to corn with about half being used for silage and the remainder as corn for grain. The goal for 1965 is 69.2 million acres. As of November 1, 1959, 146 million metric tons of silage were prepared, of which 112 million metric tons were corn silage. In 1958, of the 148 million metric tons of silage procured in the USSR, two-thirds was corn silage. 14/ Because of the short growing season in many areas now growing corn, tne major portion of the corn crop is used in the milk stage for silage (cob and stalk). Khrushchev has repeatedly stressed the advantage of feeding milk-stage corn silage and in 1957 made the following comparisons in feed units per day of labor. 15/

	Feed units
Milk-stage silage corn	441
Mature corn	140
Sugar beets and toppings	68

12/ Ibid., pp. 321-323.

13/ Typical Soviet feed classification includes:
- a. Green feed (green crops, hay, and toppings)
- b. Rough feed (hay, straw, chaff)
- c. Root and tuber feed (beets, carrots, turnips, potatoes)
- d. Silage (corn, sunflower, sorghum, toppings)
- e. Mature crop feed (cereal and feed grains, oil plant seeds)
- f. Industrial by product feed (flour mills, meat packing plants, breweries, sugar refineries, starch plants).

14/ Ekonomika Sel'skogo Khoziaistva, Moscow, Issue No. 1, January 1959, pp. 11-21.

15/ Sel'skoye Khoziaistvo SSSR, Moscow, 1958, p. 329. In the USSR the feed unit is considered equal to 1 kg. (2.2 lbs.) of average quality oats. It is frequently used to compare nutritional value of various feeds, e.g., 1 kg. hay equals 0.5 feed unit, 1 kg. oat straw equals 0.3 feed unit, 1 kg. corn (grain) equals 1.4 feed units, etc.

In relating this to meat production, he claimed that the following amounts could be obtained per work day for each type of feed:

	Lb. of meat
Milk-stage silage corn	176.4
Mature corn	56.2
Sugar beets and toppings	27.3

Khrushchev's statements were especially timely in 1957 following the poor corn growing season of 1956, when only 38.9 percent of the corn was fed as mature or grain corn as compared to 50.9 percent in 1955.

Corn alone, of course, cannot meet the Soviet feed requirements implicit in the high meat production goals, but with Khrushchev's prodding it continues to hold a major place in the Soviet feed production plans. In the summer of 1959, Khrushchev personally carried the corn campaign to the satellite countries and he continues to push for increased corn acreage and a shift to areas capable of producing higher corn fodder and silage production in the USSR. Consequently, a greater concentration of corn in the northwestern and northern parts of the Ukraine, the southwestern regions of the central chernozem region, and northern Moldavia is anticipated. The increased acreage, the shift to more productive areas, and the use of early-maturing and hybrid varieties should significantly increase the total corn for feed production. The climate, however, will continue to be a limiting factor, especially for corn for grain. This was graphically illustrated in 1959 when the poor growing season reduced the corn for grain harvest to an estimated one-half that of the 1958 bumper harvest. The climate, together with limited storage and transport facilities, compounds the problem confronting the Soviets in their drive to increase corn production substantially in the next few years.

To support Soviet plans for increased livestock and meat output it will be necessary for agriculture to achieve impressive increases in total feed production. The USSR should be able to gain modestly in feed output by continued expansion of the feed acreage, improved pasturing practices, and greater efficiency in feed grain production by proper seed selection, hybridization, and increased fertilizer use in the next few years. However, in view of the limitations, particularly climate and soils, production will not likely be sufficient to meet the ambitious livestock production requirements during the current 7-year plan and a growing Soviet import of some feeds and feed products is a distinct possibility.

Procurement, Processing, and Marketing

Privately owned livestock butchered locally, frequently under primitive conditions, account for about half of the total meat output. The remainder is obtained through procurement or purchase by the government. The government procures its meat on the hoof and slaughters and processes the animals in "meat combines." 16/ It appears, but this is by no means clear, that the

16/ "Meat combines" are state owned and operated enterprises which process livestock into meat, medical, and industrial products.

government procures 85 percent of the meat animals from the socialized sector (collective and state farms) and the remainder from private owners. 17/

In both sectors of the economy, there is a current lack of adequate meat transport, storage, and processing facilities. The government is modernizing and constructing new meat plants and plans to triple capital investment in this during the 1959-1965 period as compared to the 1952-1958 period. 18/

Marketing of livestock and meat in the USSR is also in a state of transition. The government has launched a campaign to induce the private sector to market more of its livestock and meat through government channels. Prior to June 1958, there were a number of outlets for livestock produce, such as government procurement, payment in kind to machine and tractor stations, contract sales, and sales of surpluses on the local free market. Since then the government has been organizing meat procurement under a sales and price mechanism described as "stable and flexible" within given areas. This apparent contradiction is clarified somewhat in examining the operation of this system in 1958. The initial announced average price per centner (220.46 lbs.), live weight, for the procurement of beef was 619 rubles, and of mutton 536 rubles, but at the time of procurement the government only paid 589 and 508 rubles, respectively. Since 1958 was a good year for livestock production, prices were apparently scaled downward to serve the best interest of the state. Thus, it would seem that the "stable and flexible" character of the price system is designed to keep established prices unchanged in normal production years, to move prices upward to provide incentive to the collective farms in poor years, and to lower prices to protect the state during the bumper years. Price incentive is a major factor in the Soviet effort to increase meat production.

Soviet meat consumers have traditionally obtained most of their retail fresh meat on the free market. Government-procured meat moves to the consumer mainly through state stores, restaurants, commission stores,or consumer cooperatives. In season, fresh meats are sometimes available in the state and commission stores at prices slightly lower than the free markets. Canned meats are generally plentiful but expensive. To date, the average Soviet consumer seems to prefer the better selection and quality of meats available in the free markets.

The Soviets have recently devoted considerable space in the agricultural press to improving the government's capabilities for processing and packing meats. For example, present plans provide for "use of special assortments of paper cartons, cellophane, tinfoil, polyethylene tape, and other plastic products" for packaging meats. 19/ Soviet delegations visiting the United States in 1958-59 evidenced a keen interest in U.S. meat processing and packaging methods. In order to improve meat processing and marketing, it is evident that

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17/ Meat Production in the USSR, Moscow, 1959, a pamphlet distributed at the Soviet New York Exhibit, July, 1959.

18/ Miaisnaia Industriia SSSR, Moscow, 1958, Vol. 29/6, p. 1-4, statement by V. Zotov, Deputy Chairman, State Planning Commission for the USSR.

19/ Ibid., p. 4.

TABLE 8.--Beef and pork: Procurement and purchase prices, Soviet Union, average 1953-55, annual 1952 and 1956-58 1/

Type of meat and price	Average 1953-55	1952	1956	1957	1958
	U.S.dol. per cwt.	U.S.dol. per cwt.	U.S.dol. per cwt.	U.S.dol. per cwt.	U.S.dol. per cwt.
Beef (live weight):					
Compulsory delivery price. .	3.40	17.00	17.00	--	--
Over-quota delivery price 2/	34.00	46.50	46.50	--	--
Weighted average of prices paid to collective farms.	--	--	40.80	34.25	--
Single price.	--	--	--	--	70.20
Pork (live weight):					
Compulsory delivery price .	6.80	36.30	36.30	--	--
Over-quota delivery price 2/	61.25	79.40	79.40	--	--
Weighted average of prices paid to collective farms.	--	--	40.80	(3/)	--
Single price.	--	--	--	--	89.15

1/ All prices are annual national averages; there are marked regional and seasonal variations. Computed at 4 rubles per dollar, but for purposes of comparison the tourist rate of 10 rubles per dollar may be more realistic.
2/ Very little purchased at this price before 1953.
3/ Not available.

Nove, Alec, Communist Economic Strategy: Soviet Growth and Capabilities, National Planning Association, Washington, D.C., 1959. September 1953 decrees. Pravda, February 2, 1956, January 25, 1958, July 1, 1958; Tresorukova, Vestnik Statistiki, No. 4, 1959, p. 11

the Soviets hope to improve the quality and selection of meats by improved livestock fattening practices, better timing and organization of their meat procurements, increased efficiency in meat refrigeration, transportation, plant operation, 20/ and improved packaging.

20/ In October 1959, the Central Committee of the Communist Party and the USSR Council of Ministers adopted a decision to set up a network of economical, small-capacity meat processing enterprises to insure the processing of livestock and poultry in regions where they are raised and fattened, as well as in large-scale consumer centers. Subordinate agencies have been asked to double refrigeration capacity during 1960 to 1965. This is especially true in areas where livestock and poultry breeding for the market are developing at a fast pace, i.e., the North Caucasus, the Ukraine, Moldavia, Western Siberia, the Urals, and Kazakhstan. In the procurement of meat, the kolkhozes and sovkhozes have been called upon to improve the feeding and fattening of livestock intended for delivery to the state. They also have been instructed to subdue heavy seasonal fluctuations in production and distribution.

At the present time the amount of Soviet meat entering world markets is not particularly significant. Not since before the 1917 Revolution has Russia been a net exporter of livestock, meats, and meat products. Further, its foreign meat trade remains centered in the Bloc countries. For example, in 1958 over 90 percent of Soviet meat imports came from Red China and the Bloc countries, with about 85 percent coming from the Communist East (Red China, North Korea, and Mongolia). Similarly, almost 100 percent of the meat exports are within the Bloc, going to the East European Satellites.

TABLE 9.--Meat and meat products: Value of foreign trade by country of destination and country of origin, Soviet Union, 1958

Country	Amount	Country	Amount
	Million		Million
Exports:	U.S.dollars 1/	Imports:	U.S.dollars 1/
East Germany. . .	13.3	Communist China. . .	66.6
Czechoslovakia. .	3.8	Yugoslavia	4.0
Argentina	(2/)	Hungary.	1.8
Other	.1	Bulgaria	1.6
Total	17.2	Poland	1.3
		Mongolia	1.2
		Argentina.	1.0
		North Korea.	.5
		Other.	2.7
		Total.	80.7

1/ Converted at the official rate of 4 rubles per dollar.
2/ Less than $15,000.

Vneshniaia torgovlia SSSR za 1958 god, Moscow, 1959.

On the basis of Soviet data, it appears that the Soviet meat production program has stimulated a rather sharp upsurge in meat exports in recent years. There was an export decline in 1958 but 1959 undoubtedly will reflect this upward export trend; however, the Soviets have not released their official figures as yet for 1959.

The value of Soviet meat exports in relation to total agricultural exports has been relatively small. In 1958, it was only 4 percent, or $17.2 million, of the $429 million total for agricultural exports. The value of meat imports is higher, comprising 18 percent, or $80.7 million, of the $435 million total agricultural import. Of the total Soviet foreign trade, agricultural commodities have averaged about 12 percent of the value in recent years. 21/

21/ Vneshniaia torgovlia SSSR za 1958 god, Moscow, 1958; values converted at 4 rubles per U.S. dollar.

TABLE 10.--Meat and livestock: Foreign trade of the Soviet Union annual 1955-58

Product	1955	1956	1957	1958
	Million dollars 1/	Million dollars 1/	Million dollars 1/	Million dollars 1/
Meat:				
Exports 2/	5.9	15.8	37.2	17.2
Imports 3/	111.9	100.2	60.9	80.7
Trade balance	-106.9	-84.4	-23.7	-63.5
Livestock:				
Exports 2/	0	0	0	0
Imports 3/	26.4	28.6	19.6	23.6
Trade balance	-26.4	-28.6	-19.6	-23.6

1/ Converted at the official rate of 4 rubles per dollar.
2/ Value of exports includes re-exports and is computed by adjusting the contract price to f.o.b. price at Soviet ports or land borders.
3/ Value of imports includes items imported which are re-exported and includes the f.o.b. price at foreign ports or foreign land borders.

Vneshniaia torgovlia SSR za 1956 god, 1957 god, 1958 god. Moscow 1957, 1958, 1959.

It is recognized that Soviet agricultural science could alter the foreign meat trade potential of the USSR if solutions are found to some of the technical problems of the meat industry. For example, new developments in the preservation of meats by radiation could sharply reduce refrigeration requirements both in domestic processing and shipping to foreign markets. The Soviet Government may also see some merit in sharply increasing specific types of meats for foreign trade purposes. In this latter instance, poultry may be particularly suited to Soviet aspirations for increased trade with underdeveloped countries. The favorable meat-feed ratio for poultry would conserve domestic feeds, and poultry barter arrangements for feeds from carbohydrate-producing underveloped countries would tend to alleviate the feed situation in the Soviet Union. Under the current meat expansion program, the USSR has increased meat exports considerably in the past few years, but as the situation now stands, without some rather radical solutions to the problems of the livestock and meat industry, there seems to be little liklihood that the Soviets will be in position to move significant quantities of meat into world markets during the 7-year program without considerable curtailment of domestic consumption of meats.

Conclusions and Outlook

Soviet farmers have achieved significant gains in livestock production, and meat output has more than doubled in the past decade. At the present time the government is conducting a vigorous campaign to surpass the United States in per capita meat production by 1965 or earlier. But while the upward production trend has been impressive, the outlook for maintaining the trend and

achieving goals is considerably less impressive. Not only is the livestock industry plagued by the recurring political-economic problem of providing incentive to the private and socialized livestock producers, but the Soviet Government is faced with a host of deficiencies in feed production, breeding and feeding methods, mechanization, transportation, refrigeration, and modernization and expansion of slaughtering facilities. The government has some ambitious plans to cope with these problems but it is doubtful they can be implemented sufficiently within the current framework of Soviet socialized agriculture to reach the high meat output goals of the 7-year plan (1959-65).

The Soviet Government officially reported a total meat output of 19.0 billion pounds in 1959 and a planned output of 23.3 billion pounds in 1960. The most frequently mentioned 1965 goal is 35.2 billion pounds, but some Soviet economists state this will be attained in 1963 and predict from 44 billion to 46 billion pounds by 1965. Granting the positive effect of the Khrushchev agricultural program, the new price structure, higher wage incentives, and the stimulus of competition with the United States, even the less ambitious 1965 goal appears unattainable. To achieve this goal it will be necessary for the Soviets to double the average annual growth in meat output of the past 6 years during the next 6 years. During 1954-59 the average annual growth was 7 percent, but during 1960-65 at least 14 percent is needed to produce the planned 35.2 billion pounds. Considering limitations and capabilities of Soviet livestock and meat production, and granting modest success in implementing current plans, an estimated total meat output of 25 billion pounds by 1965 appears likely.

The situation in red meat production is similar in many respects to the situation in total meat production. Red meat comprises nearly 90 percent of the total meat production. The difference between U.S. and Soviet production is quite startling in the case of red meat. In 1958 Soviet per capita production was about 41 percent, and overall red meat production was just over 50 percent of U.S. production. By 1965, even if the Soviets achieve their total meat production goal, their per capita red meat output may still only be 65 to 70 percent that of the United States. While it may not affect the 1965 total meat production greatly, the current emphasis on quick-maturing animals, especially hogs and poultry, will alter the relative proportion of the various types of meat, comprising red meat and total meat production. In 1958, total meat production included 35 percent beef and veal, 42 percent pork, 12 percent mutton and goat, 8 percent poultry, and 3 percent other types of meat. By 1965, as the drive for high annual gains continues, pork undoubtedly will still be the major meat, but current Soviet plans provide for increasing poultry production to 11 or 12 percent and beef and veal to 40 percent of the total meat production.

In the years to come, the private sector should continue to play a major but gradually diminishing role from the current position of producing over half the meat of the USSR. Output by the socialized sector undoubtedly will be stimulated by the revised procurement system and higher wages for livestock workers. This should more than offset reduced production resulting from the current government drive to eliminate private ownership of livestock by some urban families.

Feeds and feeding will continue to be major limiting factors in the current pattern of livestock and meat production. Not only are the Soviets faced with insufficient quantities of feeds, but methods of feeding and the manufacture of feed concentrates are antiquated. Khrushchev's current corn program represents a major effort toward improving the feed supply situation and this drive undoubtedly will be intensified internally in the next few years and extended to the satellite countries. In recent months, considerable attention has been given to supplementary feeding of industrial byproducts, e.g., sugar beet pulp, beer mash, and distillery byproducts, and several livestock collective farms are currently constructing large feeding lots in the vicinity of such plants to improve the use of industrial byproducts. Generally, feed production and feeding practices represent a potential, still largely untapped, in the Soviet's drive for increased meat production.

The long-standing Soviet preference for dual-purpose cattle breeds is undergoing reconsideration by meat production planners, particularly as it pertains to economical feeding. At the present time, less than 5 percent of all cattle may be considered true beef breeds. Some Soviet agricultural planners are now insisting that the relative percentages should be increased to 35 or 40 percent by 1965. While it is highly improbable that such spectacular advances can be achieved, a trend to greater numbers of beef cattle is now under way, and likely will increase in the succeeding years. By improving beef breeds and feeding practices, the Soviets hope to increase the 1959 average live weight of cattle procured by the government from 510-530 pounds to 700-750 pounds in the next few years.

For the handling and processing of meats, the Soviet Government has plans too. In October 1959, the Central Committee of the Communist Party announced plans to build a network of small slaughter and packing plants close to the sources of supply in rural areas. This calls for an expenditure of $1.7 billion to revamp the meat industry by 1965, and about triples the amount expended in 1952-58. The meat industry has been told to double refrigeration capacity by 1965 and to alleviate heavy seasonable influxes of livestock into the plants by improving procurement plans.

It is unlikely that Soviet foreign trade in livestock and livestock products will be of great interest to the Western world unless there is a considerable shift in quantity and direction in the next few years. At the present time nearly all the Soviet meat exports and over 90 percent of meat imports are concentrated in the Sino-Soviet Bloc countries. At the present level of efficiency in Soviet livestock and meat production, it is questionable whether the Soviet meat products will enter world markets in quantity for some years to come, unless there are some unanticipated breakthroughs in their scientific research in livestock production or meat preservation. However, Soviet foreign trade in meats should be considered in a political as well as an economic context, especially since Khrushchev himself relates their meat production to competition with the United States and capitalism. For the present, it appears that most of the planned production is intended for improvement of domestic meat consumption. However, a long-term plan for a protein-oriented agriculture in the USSR could be significant in their future trade with carbohydrate-oriented underdeveloped countries. Certainly, the present efficiency of Soviet agriculture generally, and of meat production specifically,

does not constitute a serious threat to United States agricultural trade in foreign markets. But in considering future developments in Soviet meat production and foreign trade, it would be well to consider Khrushchev's statement, "If we catch up with the United States in per capita production of meat, butter, and milk, we will fire a powerful torpedo under the foundations of capitalism."

TABLE 11.--Red meat: Production, USDA/FAS estimates of production in the Soviet Union, selected averages 1935-55, annual 1950-59, projected 1965

Year	Beef and Veal	Pork (excluding lard)	Mutton and goat	Total red meat	Percent increase 1950-59
	Million pounds 1/	Million pounds	Million pounds	Million pounds	Percent pounds
Average:					
1935-39. . .	3,350	4,350	1,075	8,775	-
1946-50. . .	2,775	1,700	1,025	5,500	-
1951-55. . .	3,975	3,650	1,210	8,835	-
Annual:					
1950	3,125	2,550	1,175	6,850	-
1951	3,733	2,767	950	7,450	9
1952	4,200	3,000	1,150	8,350	12
1953	3,915	3,805	1,255	8,975	7
1954	3,930	4,495	1,250	9,675	8
1955	4,093	4,182	1,450	9,725	1
1956	4,400	4,500	1,475	10,275	6
1957	4,400	5,000	1,440	10,840	5
1958	4,700	5,600	1,940	12,240	13
1959 2/. . .	(3/)	(3/)	(3/)	13,650	12
1965 2/. . .	(3/)	(3/)	(3/)	22,500	-

1/ Carcass weight equivalent, excluding offal.
2/ Preliminary estimate, subject to revision.
3/ Not available.

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